L 14126-66
ACC NR: AP6000883

form of trihedral needles. The carrier density was ~6 x 10^{14} cm^{-3} at
296K. The measurements were made at 80 and 296K. Both temperatures,
peaks of photoconductivity were observed at approximately 44 and 51
nm, and in addition, regular oscillations were observed at wavelengths
lower than 0.40 μ, attributed to strong interactions between the non-
equilibrium carriers and longitudinal optical phonons. The results
are qualitatively interpreted from the point of view of the band
structure of GaP. The complicated nature of this band structure makes
a quantitative analysis difficult. The reason why the oscillations
were not observed at room temperature is that the over-all photo-
response decreases with increasing temperature, owing to the intensi-
fication of thermal capture, reduction in the diffusion length of
the electrons, and increased rate of surface recombination. The
relative roles of the direct and indirect transitions are estimated.
Authors thank G. Ye. Pikus and I. N. Yassiyevich for help in dis-
cussing the results. Orig. art. has: 2 figures

SUB CODE: 20/ SUBM DATE: 06Jul65/ ORIG REF: 002/ OTH REF: 005

Card   2/2

L 17711-66   EWT(1)   IJP(c)   AT
ACC NR: AP6006833   SOURCE CODE: UR/0181/66/008/002/0475/0477

AUTHOR: Kovalevskaya, G. G.; Nasledov, D. N.; Siukayev, N. V.; Slobodchikov, S. V.

ORG: Physicotechnical Institute im. A. F. Ioffe, AN SSSR, Leningrad (Fiziko-tekhniche-skiy institut, AN SSSR); North Ossetian State Pedagogical Institute im. K. L. Khetagurova, Ordzhonikidze (Severo-Osetinskiy Gosudarstvennyy pedagogicheskiy institut

TITLE: Spectral photosensitivity in n-type InP

39

SOURCE: Fizika tverdogo tela, v. 8, no. 2, 1966, 475-477

TOPIC TAGS: photosensitivity, photoconductivity, impurity center

ABSTRACT: Results are given of an investigation of the spectral distribution of photoconductivity of InP n-type specimens with carrier concentrations from 10^{16} to 10^{18} cm^{-3} at 80 and 296K. Deeply located photoactive impurity centers with energies of 0.33 and 0.14 ev and an impurity level with an energy of 0.04 ev were found in the forbidden zone. The spectral distribution of natural photoconductivity measured at 80K showed the width of the forbidden zone determined from $\lambda_{1/2}$ to be $E_G = 1.41$ ev. The peak of photosensitivity corresponded to $\lambda = 0.90$—0.91 μ. The natural photoresponse had a smaller value than the impurity photosensitivity. No correlation was found between the electron concentration and the location of the peak within the interval $n = 10^{16}$—10^{18} cm^{-3}. Measurements performed at 296K showed that $\lambda_{1/2}$ for the peak of impurity photoconductivity corresponds to 1.21 ev. The width of the forbidden

Card   1/2

L 17711-66

ACC NR: AP6006833

zone at room temperature was $E_G = 1.35$ ev. The presence of minority carrier traps and the strong effect of the capture of nonequilibrium current carriers with the aid of traps on the lifetime of electrons and holes were evident. The lifetime evaluated by means of photoconductivity was of the order of 10^{-6} sec and the rate of surface recombination was $10^4 - 2 \times 10^3$ cm·sec^{-1} and depends on the surface treatment. Orig. art. has: 3 figures. [JA]

SUB CODE: 20/ SUBM DATE: 17Aug65/ ORIG REF: 001/ OTH REF: 006/ ATD PRESS: 4309

Card 2/2 net

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L 10794-67   EWT(1)   IJP(c)   AT

ACC NR: AP7003510   SOURCE CODE: UR/0202/66/000/004/0011/0015

30

AUTHOR: Agayev, Ya.; Burdukov, Yu. M.; Mikhaylova, M. P.; Nasledov, D. N.; Slobodchikov, S. V.

ORG: Physical-Technical Institute, Academy of Sciences Turkmen SSR)

TITLE: Mobility of current carriers in InAs

SOURCE: AN TurkmSSR. Izvestiya. Seriya fiziko-tekhnicheskikh, khimicheskikh i geologicheskikh nauk, no. 4, 1966, 11-15

TOPIC TAGS: semiconductor research, space charge

ABSTRACT: An attempt is made to relate the experimentally observed temperature behavior of mobility in a number of samples of n- and p-type InAs in the presence of an additional scattering mechanism on the space-charge regions. The semi-empirical Gossick-Weisberg relation admits a large number of variations for such mobility when it is compared with experiment. Sometimes, however, the impossibility of describing the observed temperature behavior and mobilities in real semiconductors of the type $A^{III}B^V$ in terms of known mobility models makes this mechanism highly applicable to the interpretation of certain experimental facts. Orig. art. has 2 figs. and 10 refs. Orig. art. has: 2 figures and 3 formulas. [JPRS: 38,695]

SUB CODE: 20 / SUBM DATE: 15Mar66 / ORIG REF: 002 / OTH REF: 008
                                                    UDC: 539.293:546.289

Card 1/1

ACC NR: AP6026693

several photoconductivity peaks in the region of intrinsic absorption are related to the band-structure features of InP. The various photoconductivity peaks are discussed. The photoeffect relaxation time indicates the existence of several long-lived components, with lifetimes ranging from several seconds to as much as 5 minutes. This indicates the importance of deep sticking levels. The authors thank G. I. Stepanov for assistance in measuring the relaxation times. Orig. art. has: 4 figures, 1 table.

SUB CODE: 20/   SUBM DATE: 28Jan66/   ORIG REF: 002/   OTH REF: 004

Card 2/2

MALINOVSKIY, V.G., inzh.; PONOMARENKO, A.A., inzh.; BER, Z.I., inzh.
[deceased]; SLOBODCHIKOV, Ye.L., inzh.; LAVRIK, P.F., inzh.;
prinimal uchastiye Nizin, N.I., tekhnik

Automatic built-up welding of iron mill rolls. Svar.proizv.
no.7:24-26 Jl '60.   (MIRA 13:7)

1. Yenakiyevskiy metallurgicheskiy zavod (for Malinovskiy,
Ponomarenko, Ber). 2. Zhdanovskiy metallurgicheskiy institut
(for Slobodchikov, Lavrik). 3. Prokatnaya laboratoriya
Yenakiyevskogo metallurgicheskogo zavoda (for Nizin).
           (Rolls (Iron mills)—Maintenance and Repair)
                (Electric welding)

SLoboochiKorA, A.I

Fuel

"The toxic effect of leaded gasoline." A. I. Slobodchikova. Zhur. Nevropatol. i Psikhiatrii im. Korsakova 52, No. 4, 27–31(1952).—Leaded aviation gasoline (I) had a toxic effect upon the central nervous system, indicated by the changes which took place in the behavior of the test animal as the poison accumulated in the organism. There appeared at first a short period of excitement followed by a state of inhibition accompanied by the usual concomitants of the vegetative nervous system and by cerebral effects. Cats exposed to the inhalation of I manifested toxic effects in all the regions of the central nervous system but mostly in the cortical and subcortical formations, in the cerebellum, and in the spinal cord. This is not characteristic of I only, since similar effects result from exposure to other poisons. In I poisoning the cortical elements appear to be the first to become affected. In chronic intoxication with small doses of I a satisfactory functional compensation took place and the pathomorphologic changes were not as profound.

R. S. Levina

BULANOV, Aleksandr Ivanovich; DANILOV, Vladimir Vladimirovich; ZAKATOV,
Petr Sergeyevich; YERMOLOV, Boris Pavlovich[deceased];
PAVLOV,Vitaliy Fedorovich; TROITSKIY, Boris Vladimirovich;
SLOBODCHIKOVA, D.A., red.; VASIL'YEVA, V.I., red. izd-va;
ROMANOVA,V.V., tekhn. red.

[Geodesy]Geodeziia. [By]A.I.Bulanov i dr. Pod obshchei red.
D.A.Slobodchikova. Moskva, Izd-vo geodez. lit-ry. Pt.1. 1962
315 p.   (MIRA 16:1)
          (Geodesy)

NAUMOVA, S.F. [Navumava, S.F.]; SLOBODCHIKOVA, L.K. [Slabodchykava, L.K.];
YEROFEYEV, B.V. [Erafeeu, B.V.]

Epoxy resin based on poly-1,2-cyclohexadiene. Vestsi AN BSSR.
Ser.khim.nav. no.2:10-15 '65.

(MIRA 18:12)

SLOBODCHIKOVA, M.; LISOVITSKAYA, Z.

Issuing credit to ferrous metallurgy enterprises based on payment
documents in transit. Den. i kred. 16 no.3:54-55 Mr '58.
(Dnepropetrovsk Province--Steel industry--Finance)   (MIRA 11:5)
(Credit)

SLOBODCHIKOVA, M.; LISICHKO, N.; SKALOZUBOVA, N.

Improve the financing of capital repairs. Den.i kred. 19 no.6:56-58
Je '61.   (MIRA 14:6)

1. Dnepropetrovskaya kontora Gosbanka.
    (Dnepropetrovsk—Industrial equipment—Maintenance and repair)
                              (Finance)

MASLOV, V.N.; NABATOVA, L.V.; NALIMOV, V.V.; NYUBERG, I.N.; OVODOVA, A.V.; SLOBODCHIKOVA, R.I.

Presentation of the results of investigation of the structural defects of germanium. Zav. lab. 29 no.10:1206-1211 '63.
(MIRA 16:12)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut redkometallicheskoy promyshlennosti.

MARKOVA, Ye.V.; SLOBODCHIKOVA, R.I.; VEKSLER, M.A.; ZELINSKIY, Yu.G.

Optimization of the process of synthesizing a sulfanilamide
compound by the method of multifactor experimental planning.
Zav. lab. 30 no.10:1251-1253 '64.   (MIRA 18:4)

SHEYKIN, A.Ye., prof., doktor tekhn.nauk; SLOBODCHIKOVA, S.A., inzh.

Hydraulic activity of belite in relation to the conditions
of obtaining it and the type of stabilizer. Nauch. soob.
NIITSEmenta no.12:8-13 '61.
                  (MIRA 15:7)

                  (Belite)

SHEYKIN, A.Ye., prof., doktor tekhn. nauk; SLOBODCHIKOVA, S.A., inzh.

Producing low-heat hydration portland cement on a base of phos-
phorous slag. Trudy NIITSement no.19: 52-66 '63.   (MIRA 17:11)

MIL'SHTEYN, Mikhail Abramovich, general-mayor; SLOBODENKO, Aleksey Kirillovich, polkovnik; ; PANTELEYEV, M.V., redaktor; GUBIN, M.I., tekhnicheskiy redaktor

[Military ideologists of capitalist countries on the character and means of conducting modern war] Voennye ideologi kapitalisticheskikh stran o kharaktere i sposobakh vedeniia sovremennoi voiny. Moskva, Izd-vo "Znanie," 1957. 63 p. (Vsesoiuznoe obshchestvo po rasprostra- neniiu politicheskikh i nauchnykh znanii. Ser.1, nos.11-12)
(War)   (MLRA 10:7)

MIL'SHTEYN, M.A., general-mayor; SLOBODENKO, A.K., polkovnik; ZLATOVEROV, B.S., podpolkovnik, red.; GUBINA, Z.A., tekhn.red.

[Bourgeois military science] O burzhuaznoi voennoi nauke. Moskva, Voen. izd-vo M-va obor.SSSR, 1957. 285 p. (MIRA 10:12.)
(Military art and science)

SLOBODENKO, A., kand. voyennykh nauk, polkovnik.

New organization of American combined arms units. Voen. vest. 37
no.11:71-78 N '57.
(United States—Army—Organization)

(MIRA 11:1)

SLOBODENKO, A., kand. voyennykh nauk, polkovnik

Defense of a river bank; from the foreign press. Voen. vest. 39
no.8:83-89 Ag '59.   (MIRA 12:10)
        (Infantry drill and tactics)

SLOBODENKO, A., kand.voyen.nauk, polkovnik

Changes in the organization of combined arms units in the U.S.Army.
Voen.vest. 39 no.4:88-91 Ap '60.   (MIRA 14:2)
                        (United States--Army)

MIL'SHTEYN, Mikhail Abramovich, general-mayor; SLOBODENKO, Aleksey Kiril-
    lovich, polkovnik; MOROZOV, B.N., polkovnik, red.; SLEPTSOVA, Ye.N.,
    tekhn. red.

    [Bourgeois military science] O burzhuaznoi voennoi nauke. Izd.2.,
    perer. i dop. Moskva, Voen. izd-vo M-va obor. SSSR, 1961. 354 p.
                                                    (MIRA 14:10)
                (Military art and science—History)

MIL'SHTEYN, Mikhail Abramovich, general-mayor; SLOBODENKO, Aleksey
     Kirillovich, polkovnik; LIVSHITS, Ya.L., red.;
     ATROSHCHENKO, L.Ye., tekhn. red. . . . . .

     [Military doctrine of the U.S.A.] O voennoi doktrine SShA.
     Moskva, Izd-vo "Znanie," 1963.   31 p. (Novoe v zhizni, nauke,
     tekhnike. VII Seriia: Mezhdunarodnaia, no.12)   (MIRA 16:8)
          (United States--Military policy)

S/058/61/000/006/052/063
A001/A101

6.9700

AUTHORS: Levshin, I.P., Slobodenyuk, G.I.

TITLE: A device for measuring correlation coefficients in distant communica-
              tion lines using ultrashort waves

PERIODICAL: Referativnyy zhurnal. Fizika, no. 6, 1961, 359, abstract 6Zh290 ("Sb.
              tr. Nauchno-tekhn. o-vo radiotekhn. i elektrosvyazi im. A.S. Popova",
              1959, no. 3, 140 - 151)

TEXT: The authors describe a device designed for measuring coefficients of
correlation between two random processes which characterize signal fading at dis-
tant tropospheric propagation of ultrashort waves. They give recommendations on
using this device, correlation meter, in those regions which are connected with
studying statistical properties of random processes. The description of the device
is preceded by a short substantiation of the measurement method.

[Abstracter's note: Complete translation]

Card 1/1

SLOBODENYUK, G.I.

Parametric excitation of oscillations in a stage with suscep-
tance and conductance. Radiotekh. i elektron. 8 no.11:1855-
1861 N '63.   (MIRA 17:1)

ACCESSION NR: AP4033124   S/0120/64/000/002/0111/0112

AUTHOR: Slobodenyuk, G. I.

TITLE: Decimeter coaxial switch with nonlinear-capacitance diodes

SOURCE: Pribory* i tekhnika eksperimenta, no. 2, 1964, 111-112

TOPIC TAGS: coaxial switch, antenna switch, duplexer, semiconductor diode switch, decimeter wave switch, D219 diode switch

ABSTRACT: By applying alternatively positive and negative bias to a semi-conductor diode, it can be used as an antenna switch (duplexer); the estimated forward loss is 0.16 db and the reverse loss is 38 db. D219 silicon diodes were used in an experimental coaxial switch at 700 mc. The switch is similar to that described by J. P. Knight and J. D. McNeil (Proc. IRE, 1963, v. 51, no. 2, p. 400). Orig. art. has: 4 figures and 3 formulas.

Cc   Card 1/.2

ACCESSION NR: AP4043692   S/0109/64/009/008/1539/1542

AUTHOR: Slobodenyuk, G. I.

TITLE: Controlling the regeneration of an oscillatory system containing a nonlinear-capacitance diode

SOURCE: Radiotekhnika i elektronika, v. 9, no. 8, 1964, 1539-1542

TOPIC TAGS: oscillatory system, underexcited oscillatory system, oscillatory system regeneration

ABSTRACT: To avoid undesirable detuning, the d-c bias of a diode is controlled in such a way (along with a variation of the exciting power fed to the diode) that the diode capacitance remains constant. Based on well-known relations, formulas are developed which describe the detection process in the diode used for controlling the bias automatically. Relations are also indicated for guarding against a noise increase due to the shot effect. A numerical example illustrates

Card   1/2

SLOBODENYUK, G.I.

Effect of the stray parameters of semiconductor diodes on the instability factors of parametric amplifiers. Radiotekh. i elektron. 9 no.10:1884-1886 O '64.

(MIRA 17:11)

L 25554-66A)   EWT(1)/EWA(h)

ACC NR: AM6004739	Monograph	URV

4/3

Vasil'yev, V. N.; Slobodenyuk, G. I.; Trifonov, V. I.; Khotuntsev, YU. L.

Regenerative semiconductor parametric amplifiers; some problems of theory and design (Regenerativnyye poluprovodnikovyye parametricheskiye usiliteli; nekotoryye voprosy teorii i rascheta) Moscow, Izd-vo "Sovetskoye radio", 1965. 447 p. illus., biblio. Errata slip inserted. 10,500 copies printed.

TOPIC TAGS: parametric amplifier, solid state amplifier, millimeter wave amplifier, amplifier design

PURPOSE AND COVERAGE: The book contains the theory of regenerative semiconductor parametric amplifiers, developed on the basis of the theory of linear networks, and is intended for scientific and engineering-technical workers engaged in the investigation and development of parametric systems, and also for students in higher institutions of learning as a text for the course on "Theoretical Principles of Radio Engineering." The subjects covered are the various amplifier parameters, different methods of tuning parametric amplifiers, stability of the phase and frequency characteristics of a parametric emplifier, the operating features of multifrequency parametric amplifiers, and questions involved in the electrodynamic calculations and the choice of the amplifier parameters. The book contains in the form of appendices some additional data and calculations dealing with particular problems touched upon in the main text. Chs. I, VI, and VII and Secs. 1 and 2 of Ch. II, Secs. 1, 3, and 4 of Ch. III, and Appendices I, IV, and V were written by G. I. Slobodenyuk; Ch. IV, Secs. 2 and 5 of Ch. III, Secs. 1, 2, and 3 of Ch. V, and Appendices II, III, and VI were

Card 1/2   UDC: 621.375.93

L 27409-65   FBD/EWT( )/EWG(v)/EEC-4/EEC(t)   Pe-5/P1-4/Pae-2   GW/WS

ACCESSION NR: AP5005354   S/0109/65/010/002/0364/0367

AUTHOR: Rzhiga, O. N.; Slobodenyuk, G. I.; Titov, V. N.; Trunova, Z. G.

TITLE: Decimeter-band radiometer and measurement of radiation from Jupiter

SOURCE: Radiotekhnika i elektronika, v. 10, no. 2, 1965, 364—367

TOPIC TAGS: planetary radiation, radiation measurement, radiometer, modulated radiometer, radiation flux / Virgo A, Jupiter

ABSTRACT: Measurements of 700-Mc radiation intensity from Jupiter were made in October 1963 with a modulated radiometer. The antenna system consisted of two identical antennas oriented in the same direction with their feed connected through a double T-joint. The outputs of the latter were alternately connected to the receiver through an antenna switch. A square-law detector, a modulation-frequency amplifier (passband, 10 cps) a synchronous detector using silicon diodes (time constants of the RC integrating circuit at the detector output: 1, 2, 5, 10, or 15 sec), a d-c amplifier, and a recorder made up the basic equipment. (See Fig. 1 of Enclosure.) To eliminate spurious signals, rectangular modulating voltage was applied to the grid of an i-f tube of the amplifier. The radiometer was calibrated with a noise generator; its fluctuation sensitivity was 0.4K at an integrator time con-

Card 1/3

L 27409-65

ACCESSTION NR: AP5005354   /

stant of 15 sec. The intensity of radiation received from Jupiter was determined from a standard noise signal calibrated by means of the source Virgo A. The radiation flux density and spectral index of Virgo A at 960 cps. (300×10^{-26} w/m^2/cps and -0.72) were adjusted to the frequency of the measurements. The equivalent temperature was determined as 12,000K with an rms error of 2000K. The results of the observations confirm the pattern found in earlier measurements at other wavelengths of the variation of radiation intensity with wavelength. Orig. art. has: 1 figure and 3 formulas.   [DW]

ASSOCIATION: Institut radiotekhniki i elektroniki AN SSSR (Institute of Radio Engineering and Electronics, AN SSSR)

SUBMITTED: 24Feb64   ENCLOSURE: 01   SUB CODE: AA, EC

NO REF SOV: 002   OTHER: 010   ATD PRESS: 3192
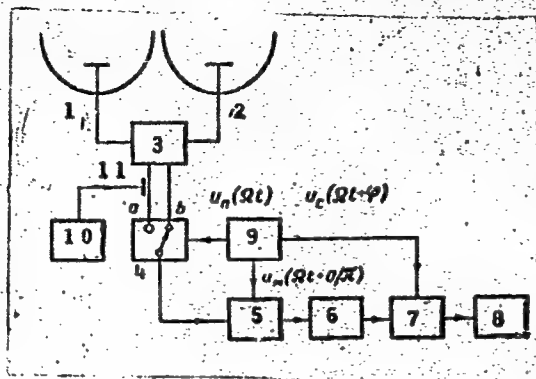
Card 2/3

L 27409-65

Fig. 1. Block diagram of the radiometer

1, 2 – Antennas; 3 – double T-Joint;
4 – antenna switch; 5 – superheterodyne
receiver with square-law detector;
6 – modulation-frequency amplifier;
7 – synchronous detector; 8 – recorder;
9 – rectangular pulse generator; 10 – noise
generator; 11 – capacitive attenuator.

Card 3/3

L 63073-65   EEC(b)-2/EWA(h)/EWT(1)   P1-4/Pj-4/P1-4/Pm-4/Peb
ACCESSION NR: AP5013343   UR/0109/65/010/005/0898/0902
                                                 621.378.5

AUTHOR: Slobodenyuk, G. I.; Khotuntsev, Yu. L.

TITLE: Parametric-amplifier tuning by controlling the bias and pumping amplitude of the diode

SOURCE: Radiotekhnika i elektronika, v. 10, no. 5, 1965, 898-902

TOPIC TAGS: parametric amplifier, parametric amplifier tuning

ABSTRACT: The tuning of a parametric amplifier (or converter) by controlling the capacitance and modulation factor of the parametric diode, with a fixed pumping frequency, is theoretically considered. The amplifier gain formula given by L. Blackwell and K. Kotzebue ("Semiconductor-diode parametric amplifiers," NY, 1961) is used; no input filter is assumed. The formulas for the tuning range are tested in the cases of alloy and diffused diodes having typical parameters, and it is found that a two-circuit amplifier or a regenerative converter can be tuned within 10% of the signal frequency without changing the pumping frequency. Orig. art. has: 29 formulas.

Card 1/2

L 63073-65

ACCESSION NR: AP5013343

ASSOCIATION: none

SUBMITTED: 24Feb64   ENCL: 00   SUB CODE: EC

                           OTHER: 002

NO REF SOV: 003

Card 2/2

SLOBODENYUK, I.

      Improving the repair of cold storage chambers. Mias. ind.
      SSSR 29 no.6:48-49 '58.   (MIRA 11:12)

      1.Sumskiy myasokombinat.
                    (Cold storage warehouses)

SLOBODENYUK, I.T.

Mechanized production line for the flaying and conveying of pigskins.
Kharch.prom. no.4:5-7 O-D '63.   (MIRA 17:1)

SLOBODENIUK, N. I.

"Epidemiology of Dysentery in Infants. (Based on Data from the City of Dnepropetrovsk)."
   Min. Public Health Ukrainian SSR, Dnepropetrovsk Medical Inst., Dnepropetrovsk, 1954.
   (Dissertation for the Degree of Candidate in Medical Sciences)

SO: Knizhnaya Letopis', No. 22, 1955, pp 93-105

MIROVALEVA, Z.G., dotsent; SHANGIN, N.I.; LEGEN'KIY, I.G., assistent;
        SLOBODENYUK, N.I.

        Public health of the Province and City of Omsk on the 40th anniversary
        of Soviet power. Trudy OMI no.25:23-48 '59.   (MIRA 14:10)

        1. Iz kafedry organizatsii zdravookhraneniya Omskogo meditsinskogo
        instituta imeni Kalinina, zav. kafedroy dotsent Z.G.Mirovaleva.
                (OMSK PROVINCE—PUBLIC HEALTH)

SLOBODENYUK, N.P., student IV kursa.

Random walks related to a Markov chain. Stud.nauk.pratsi no.16:165-177 '55.   (MLRA 10:2)

(Probabilities)

32517
S/044/61/000/011/040/049
C111/C444

16.6100 (2403)

AUTHOR: Slobodenyuk, N. P.

TITLE: On the estimation of the distribution function based on the realisation of the stationary process

PERIODICAL: Referativnyy zhurnal, Matematika, no. 11, 1961, 23, abstract 11V117. (Tr. Vses. soveshchaniya po teorii veroyatnostey i matem. statistika, 1958. Yerevan, AN Arm SSR, 1960, 88-95

TEXT: It is communicated that the empiric distribution function

$$F_T(x) = \frac{1}{T} \int_0^T \Psi_x \left[\xi(t) \right] dt$$

where

$$\Psi_x(t) = \begin{cases} 1 \text{ for } t < x \\ 0 \text{ for } t \geq x \end{cases}$$

and $\xi(t)$ is a stationary process in the narrow sense converges for $T \to \infty$ to the onedimensional distribution function $F(x)$ of the process

Card 1/2

SLOBODENYUK, N.P. [Slobodeniuk, M.P.]

Limit theorem for additive functionals of a sequence of sums
of independent random variables. Dop. AN URSR no.6:698-700 '63
(MIRA 17:7)

1. Institut matematiki AN UkrSSR. Predstavleno akademikom AN
UkrSSR B.V. Gnedenko [Hniedenko, B.V.]

ACCESSION NO: AP401511ó

the random variables $\eta_n = \sum_{k=0}^{n-r} f_n(S_{nk}, S_{nk+1}, \ldots, S_{nk+r})$. It is of interest to study the

limit distribution of these variables. The special case of an arbitrary non-negative function $f_n(x, y)$ of two variables is considered. Thus, $\eta_n = \sum_{k=0}^{n-1} f_n(S_{nk}, S_{nk+1})$.

Denote by $w(t)$, $0 \leq t \leq 1$, the Brownian motion process on the interval $[0, 1]$.

Define $H_n(x) = M f_n^2(x, x + S_{n1})$, $\qquad h_n(x) = 2n \int_0^x H_n(t) dt$,

$\Phi_n(x) = M f_n(x, x + S_{n1})$, $\quad u_n(x) = 2n \int_0^x \Phi_n(t) dt$, and $\quad g_n(x) = \sqrt{n} M f_n(x, x + S_{n1}) \xi_1$.

Under certain stated conditions the following theorems are proved: Theorem 1. If there exists a function $h(x)$ such that $h_n(x) \to h(x)$ for almost all x, then the limit distribution of η_n coincides with the distribution of the variable

$\omega \left(\int_0^{w(1)} h(t) dt - \int_0^1 h(\omega(t)) d\omega(t) \right)^{\frac{1}{2}}$, where ω is a normal $(0, 1)$ random variable not

Card 2/3

SKOROKHOD, A.V. (Kiyev); SLOBODENYUK, N.P. (Kiyev)

Limiting distribution for additive functionals of a sequence
of sums of independent equally distributed latticed random
variables. Ukr. mat. zhur. 17 no.2:97-105 '65.

(MIRA 18:5)

L 8931-66   EWT(d)/T   IJP(c)

ACC NR: AP5028004   SOURCE CODE: UR/0052/65/010/004/0660/0671

AUTHOR: Skorokhod, A. V.; Slobodenyuk. N. P.

ORG: None

TITLE: Limit theorems for random walks. Part 1.

SOURCE: Teoriya veroyatnostey i yeye primeneniya, v. 10, no. 4, 1965, 660-671

TOPIC TAGS: distribution theory, random walk problem, distribution function, existence theorem

ABSTRACT: An investigation is made of the sequence of independent, indentically distributed random variables $\xi_1, \xi_2, \ldots, \xi_n, \ldots$, $M\xi_i = 0$, $D\xi_i = 1$. It is assumed that $S_k = \sum_{1}^{k} \xi_i$.

This article studies the limit distributions of the normalized sums $\eta_n = \sum_{k=1}^{n} f(S_k)$, where $f(x)$ is a measurable function. Specifically, the authors study the problem of the existence of constants A_n and B_n such that the distribution of the variable $(\eta_n - A_n)/B_n$ converged at $\infty \leftarrow u$ to some nondegenerate distribution. Orig. art. has: 68 formulas.

SUB CODE: MA / SUBM DATE: 22Mar65 / ORIG REF: 005 / OTH REF: 007

Card   1/1

L 45156-66   EWT(1)
ACC NR: AP6021952

SOURCE CODE: UR/0052/66/011/001/0056/0067

27
B

AUTHORS: Skorokhod, A. V. (Kiev); Slobodenyuk, N. P. (Kiev)

ORG: none

TITLE: Limit theorems for random walks. 2

SOURCE: Teoriya veroyatnostey i yeye primeneniya, v. 11, no. 1, 1966, 56-67

TOPIC TAGS: boundary value problem, random walk problem, probability, functional equation, Gaussian distribution, Laplace transform, normal distribution

ABSTRACT: This paper is a continuation of work published earlier (A. V. Skorokhod and N. P. Slobodenyuk, Teoriya veroyat. i yeye primen., X, No. 4, 1965, p. 660). The definitions are not repeated. The limit distributions of the values η_n in the general case $(A_n \neq 0)$ are studied. In the absolutely continuous case,

$$u_n(x) = \frac{2\sqrt{n}}{B_n} \int_0^{x\sqrt{n}} f(y)\,dy - \frac{2na_nx}{B_n},$$

$$g_n(x) = \frac{2\sqrt{n}}{B_n^2} \int_0^{x\sqrt{n}} f^2(y)\,dy - \frac{2a_n}{B_n} u_n(x) - \frac{2na_n^2x}{B_n^2}.$$

Card 1/3

L 45156-66

ACC NR: AP6021952

O

$$= \prod_{k=1}^{\infty} \frac{1}{\sqrt{2\pi}\,\sigma_k} \int_{-\infty}^{\infty} \exp\left\{-\frac{(1-2i\lambda\sigma_k^2)x^2}{2\sigma_k^2}\right\} dx = \prod_{k=1}^{\infty} (1-2i\lambda\sigma_k^2)^{-1/2} =$$

$$= \prod_{k=1}^{\infty} \left(1 - \frac{8i\lambda}{(2k+1)^2\pi^2}\right)^{-1/2} = (\cos\sqrt{2i\lambda})^{-1/2}.$$

Orig. art. has: 24 formulas.

SUB CODE: 12/ SUBM DATE: 22Mar65/ ORIG REF: 003/ OTH REF: 002

Card 3/3

SLOBODENYUK, P.S.

Compacting railroad beds. Transp. stroi. 11 no.7:8-9 Jl '61.
(MIRA 14:7)

1. Glavnyy inzh. tresta Sibstroymekhanizatsiya.
(Railroads--Earthwork)

SLOBODENYUK, P.S.

Carrying out earthwork operations in winter. Transp. stroi. 14
no.1:7-10 Ja '64.
                                        (MIRA 17:8)

1. Glavnyy inzh. Sibstroymekhanizatsii.

ISAYENKO, E.P.; SLOBODENYUK, P.S.; MIROSHNIK, B., red.

[Characteristics of the construction of roadbed in Siberia; lectures for the correspondence courses for engineers and technicians of the Novosibirsk Institute of Railroad Transportation Engineers] Osobennosti sooruzheniia zheleznodorozhnogo zemlianogo polotna v Sibiri; lektsii dlia zaochnykh kursov ITR pri NIIZhTe. Novosibirsk, Novosibirskii in-t inzhenerov zhel-dor. transp. 1964.   54 p.   (MIRA 18:7)

SLOBODENYUK, Vasiliy Prokof'yevich; BERGAUZ, L.A., red.; SMOLDYREV, A.Ye., red.izd-va; LOMILINA, L.N., tekhn.red.

[Technical norms for mining operations] Tekhnicheskoe normirovanie gornykh rabot na predpriiatiiakh tsvetnoi metallurgii. Pod red. L.A.Bergauza. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po gornomu delu, 1959. 126 p.　　　　　　(MIRA 13:2)
　　(Mining engineering)　　(Nonferrous metals)

SLOBODETSKIY, L. N.

"Concerning the Representation of Regular Functions in a Unitary Circle by Certain Series of Interpolation," Dokl. AN SSSR, 32, No.1, 1941

Inst. Math. & Mech., Leningrad State U.

SLOBODETSKIY, L. N.

ID

USSR/Mathematics - Function Theory   Apr 1947
Mathematics - Series

PA 34T38
34T38 PT

"The Presentation of Regular Functions by a Series of Fractional Rational Functions," L. N. Slobodetskiy,

"Doklady Akademii Nauk SSSR" Vol LVI, No 2

The question is examined of the presentation of regular functions by a series of the type

$$c_0 + \sum_{n=1}^{\infty} c_n \prod_n (z),$$

USSR/Mathematics - Function Theory (Contd)   Apr 1947

ID

34T38

where
$$\prod_n (z) = \prod_{k=1}^{n} \frac{z - a_k}{1 - z a_k} \quad (n \geq 1); \ |a_k| < 1;$$

$$\sum_{k=1}^{\infty} (1 - |a_k|) = + \infty$$

in the proposition that the number $\{a_k\}$ have only a final number of condensation points:

$$e^{i\alpha_1}, e^{i\alpha_2}, \ldots, e^{i\alpha_p}.$$

34T38

SLOBODETSKIY, L.N.

USSR.

Slobodeckii, L. N. On strongly elliptic differential oper-
ators. Doklady Akad. Nauk SSSR (N.S.) 89, 13-15
(1953). (Russian)

Let L be a system of differential operators of order $2m$ on
a domain D of Euclidean n-space,

$$Lu = (-1)^m \sum_{(k)} A^{(k_1,\ldots,k_{2m})}(x) \frac{\partial^{2m} u(x)}{\partial x_{k_1} \cdots \partial x_{k_{2m}}} + Tu$$

acting on N-vector functions u, with the A's $N \times N$ matrices
and T of order $< 2m$. L is strongly elliptic if

$$\left(\sum_{(k)} A^{(k_1,\ldots,k_{2m})}(x)\alpha_{k_1}\cdots\alpha_{k_{2m}} y, y \right) > 0$$

(OVER)

for every real non-zero N-vector α. We may consider L as defining an operator L_0 in the N-vector L^2 space over D whose domain is the set of $2m$-times continuously differentiable functions with compact supports in D. If L has constant coefficients and $T=0$, by a Fourier-integral argument due to Van Hove [Nederl. Akad. Wetensch., Proc. 50, 18–23 (1947); these Rev. 8, 522] and Gårding [C. R. Acad. Sci. Paris 230, 1030–1032 (1950); these Rev. 11, 521] L_0 is a positive operator, being bounded from below by a constant multiple of the m-Dirichlet norm. The author presents examples with $m=2$, $N=2$; $m=\cdots$, $N=1$ to show that positivity no longer holds for variable coefficients. [See the second preceding review.] _F. Browder._

SLOBODETSKIY, L. N.

Mathematical Reviews
May 1954
Analysis

10-7-54

LL

(2)

Slobodeckiĭ, L. N. On a problem of the theory of univalent
functions. Doklady Akad. Nauk SSSR (N.S.) 92, 235–
238 (1953). (Russian)

Let B be a region in the ζ-plane of finite connectivity and
let Σ be the class of functions univalent and meromorphic
in B of the form $F(\zeta) = 1/(\zeta-z) + \cdots$ or $F(z) = z + \cdots$
according as the pole z is finite or infinite. Let

$$j_0(\zeta, z, \zeta') = 1/(\zeta-z) + \cdots, \quad j_0(\zeta', z, \zeta') = 0,$$

be the function which maps B onto the plane cut by arcs of
logarithmic spirals $\Im(e^{-i\theta} \log w) = c$, and put

$$p(\zeta, z, \zeta') = j_0^{1/2}(\zeta, z, \zeta') j_{\zeta'}^{1/2}(\zeta, z, \zeta')$$

and

$$q(\zeta, z, \zeta') = j_0^{1/2}(\zeta, z, \zeta')/j_{\zeta'}^{1/2}(\zeta, z, \zeta').$$

It is proved that if $F(z) \in \Sigma$ and γ_{ij} are arbitrary then

$$(*) \quad \Re e^{-2i\theta} \sum_{i,j=1}^{n} \gamma_{ij} \log \frac{F(\zeta_i) - F(\zeta_j)}{p(\zeta_i, z, \zeta_j)} \geq \Re \sum_{i,j=1}^{n} \beta_{ij} \log q(\zeta_i, z, \zeta_j)$$

where the β_{ij} are certain functions of the γ_{ij}. When B is the
region $|\zeta| < 1$, the functions p and q are explicitly known
and (*) reduces to a generalized form of the distortion
theorem due to Goluzin [Mat. Sbornik N.S. 23 (65), 353–360
(1948); these Rev. 10, 602].   A. W. Goodman.

SLOBODETSKIY, L·N·

USSR/ Mathematics - Cauchy's problem

Card 1/1   Pub. 22 - 6/51

Authors   :   Slobodetskiy, L. N.

Title   :   Cauchy's problem for non-homogeneous parabolic systems

Periodical   :   Dok. AN SSSR 101/5, 805-808, Apr. 11, 1955

Abstract   :   A proof is given of the solvability of Cauchy's problem as applied
                 to a system of non-homogeneous parabolic differential equations.
                 This was accomplished for the sake of completion of the Eydel'man work
                 where the solvability of Cauchy's problem was proved in the case of
                 homogenous parabolic differential equations. Two USSR references
                 (1951 and 1954).

Institution :   .....

Presented by: Academician V. I. Smirnov, December 11, 1954

SLOBODETSKIY, L. N.

USSR/Mathematics

Card 1/1   Pub. 22 - 5/47

Authors   : Slobodetskiy, L. N.

Title   : Generalization of the solution of hyperbolic and elliptical systems of differential equations

Periodical : Dok. AN SSSR 101/6, 997 - 1000, Apr. 21, 1955

Abstract   : A series of theorems are proved for the purpose of establishing qualitative characteristics of generalized solutions of parabolic (A) and elliptical (B) systems of differential equations, when (A) is:

$$\frac{\partial u}{\partial t} - \sum_{k=1}^{2k} \sum_{i_1,\dots,i_k=1}^{n} A^{(i_1,\dots,i_k)}(t,x) \frac{\partial^k u}{\partial x_{i_1}\cdots\partial x_{i_k}}$$

$-A(t,x)u = f(t,x);$ and (B) is:

$$\sum_{k=1}^{2k} \sum_{i_1,\dots,i_k=1}^{n} A^{(i_1,\dots,i_k)}(x) \frac{\partial^k u(x)}{\partial x_{i_1}\cdots\partial x_{i_k}}$$

$+ A(x)u(x) = f(x).$ Nine references: 6 USSR, 2 USA and 1 Swiss (1908-1954).

Institution : The State Pedagogical Institute, Leningrad

Presented by: Academician V. I. Smirnov, December 25, 1954

SLOBODETSKIY, L. N.

USSR/ Mathematics

Card   1/2   Pub. 22 - 5/46

Authors   :   Slobodetskiy, L. N.

Title   :   A theory of the potential for parabolic equations

Periodical :   Dok. AN SSSR   103/1, 19-22, Jul 1, 1955

Abstract   :   A theory of the potential for so-called parabolic equations is presented.
                 A parabolic equation, according to Petrovskiy, is

$$u'_t - Mu \equiv u'_t - \sum_{i,j=1}^{n} a_{ij}(t,X) u''_{xjxj} - \sum_{j=1}^{n} b_j(t,X) u'_{xj} -$$
$$- c(t,X) u = f(t,X), \quad a_{ij} = a_{ji},$$

                 provided the a_{ij}, b_i, c and f are complex functions of the real variables

Institution :   Leningrad State Pedagogical Institute

Presented by: Academician V. I. Smirnov, March 26, 1955

Card 2/2   Pub. 22 - 5/46

Periodical :   Dok. AN SSSR 103/1, 19-22, Jul 1, 1955

Abstract   :   t and X (= x_1 . . . x_n) at any real values of x_1 . . . x_n which in return
                  satisfy the following conditions:

$$Re\ \lambda \geqslant \delta \sum_{n=1}^{n} \alpha_n^2 \quad (\delta > 0)$$

where x and λ are

$$\lambda = \lambda(t, X, A) = \sum_{i,j=1}^{n} a_{ij}(t, X) \alpha_i \alpha_j.$$

Ten references: 2 Germ., 2 Brit., 5 USSR and 1 Ital. (1908-1955).

SLOBODETSKIY, L·N·

SUBJECT   USSR/MATHEMATICS/Differential equations   CARD 1/1   PG - 416
AUTHOR   SLOBODECKIJ L.N., CHARAMOVA M.I.
TITLE   On the uniqueness of the solution of the Cauchy problem for
              quasi-linear symmetric systems of differential equations.
PERIODICAL   Uspechi mat. Nauk 11, 4, 155-162 (1956)
              reviewed 12/1956

Usually the question on the uniqueness of the solutions of the Cauchy problem
for non-linear partial differential equations in the region of non-analytic
functions is reduced to the question of the uniqueness in the linear case.
The authors show that in case of some (so-called symmetric) systems of first
and second order the question of the uniqueness can be solved more easily by
the direct consideration of the quasi-linear system. There the conditions
for the uniqueness correspond to Osgood's conditions for the uniqueness of
the solution of the Cauchy problem for systems of ordinary differential
equations. Under a symmetric system the authors comprehend systems

$$\frac{\partial^2 u}{\partial t^2} = \sum_{i,j=1}^{n} A_{ij} \frac{\partial^2 u}{\partial x_i \partial x_j} + f(t, x, u, \frac{\partial u}{\partial t}, \frac{\partial u}{\partial x_1}, \dots \frac{\partial u}{\partial x_n}),$$

where $A_{ij} = A_{ij}(t, x, u, \frac{\partial u}{\partial t}, \frac{\partial u}{\partial x_1}, \dots, \frac{\partial u}{\partial x_n})$ is a Hermitean matrix and $A_{ij} = A_{ji}$.

Further for arbitrary vectors ξ_i it is demanded: $\sum_{i,j=1}^{n}(A_{ij}, \xi_i, \xi_j) \geq \mu^2 \sum_{i=1}^{n}|\xi_i|^2$.

SLOBODETSKIY, L.N.; BABICH, V.M.

Boundedness of the Dirichlet integral. Dokl.AN SSSR 106 no.4:
604-606 F '56.   (MIRA 9:6)

1.Leningradskiy pedagogicheskiy institut. Predstavleno akade-
mikom V.I.Smirnovym.
                    (Integrals)

SLOBODETSKY, L.N.

38-6-4/5

AUTHOR: SLOBODETSKIY, L.N.

TITLE: Generalized Solutions of Parabolic and Elliptic Systems (Obobshchennyye resheniya parabolicheskikh i ellipticheskikh sistem)

PERIODICAL: Izvestiia Akademii Nauk, SSR, Seriya Matematicheskaya, 1957, Vol. 21, Nr.6, pp.809-834 (USSR)

ABSTRACT: The author makes a qualitative investigation of the generalized solutions of the system

$$Lu \equiv \frac{\partial u}{\partial t} - \sum_{r=1}^{2p} \sum_{i_1,\ldots,i_r=1}^{n} A^{(i_1,\ldots,i_r)}(t,x) \frac{\partial^r u}{\partial x_{i_1} \cdots \partial x_{i_r}} - A(t,x)u =$$

$$= f(t,x),$$

which is assumed to be parabolic and elliptic, respectively (in the sense of Petrovskiy). The investigation bases on the application of the estimations of Eydel'man [Ref 4] of the fundamental matrix and on the properties of this matrix resulting therefrom.

Card 1/2

Generalized Solutions of Parabolic and Elliptic Systems   38-6-4/5

   The results of the paper are already published in Doklady
   Akademii Nauk, 1955, Vol. 101, pp.997-1000.
   15 Soviet and 5 foreign references are quoted.

PRESENTED: By V.I.Smirnov, Academician
SUBMITTED: December 6, 1956
AVAILABLE: Library of Congress

Card 2/2

SLOBODETSKIY, L.N.

S.L. Sobolev's spaces of fractional order and their application to
boundary problems for partial differential equations. Dokl. AN
SSSR 118 no.2:243-246 Ja '58.   (MIRA 11:4)

1.Leningradskiy gosudarstvennyy pedagogicheskiy institut. Predstavleno
akademikom V.I. Smirnovym.
                    (Differential equations, Partial)

SOV/39-46-2-5/6

AUTHOR: Slobodetskiy, L.N. (Leningrad)

TITLE: On the Fundamental Solution and the Cauchy Problem for a Parabolic System (O fundamental'nom reshenii i zadache Koshi dlya parabolicheskoy sistemy)

PERIODICAL: Matematicheskiy sbornik, 1958, Vol 46, Nr 2, pp 229-258 (USSR)

ABSTRACT: The author considers the system

$$(A) \quad Lu \equiv \frac{\partial u}{\partial t} - \sum_{r=1}^{2p} \sum_{i_1,\dots,i_r=1}^{n} A^{(i_1,\dots,i_r)}(t,x) \frac{\partial^r u}{\partial x_{i_1} \dots \partial x_{i_r}} - A(t,x)u = f(t,x)$$

assumed to be parabolic in the sense of Petrovskiy [Ref 1], where quadratic matrices are denoted with A and u and f denote vectors. The author shows that the estimations of the fundamental matrix of (A) obtained by Eydel'man [Ref 2] remain true under somewhat weaker assumptions than in [Ref 2]. Furthermore he shows that the conditions for the correctness of the Cauchy problem for (A) can be weakened too. Finally, the results are applied to multi-dimensional Markov processes. The author's results were announced already a long time ago [Ref 6].

Card 1/2

On the Fundamental Solution and the Cauchy Problem   SOV/39-46-2-5/6
for a Parabolic System

　　　　　There are 11 references, 9 of which are Soviet, 1 American,
　　　　　and 1 Japanese.

SUBMITTED: November 20, 1955

Card 2/2

The Spaces of Fractional Order of S.L. Sobolev and Their   20-118-2-10/60
Application to Boundary Value Problems for Partial Differential
Equations

summable in Q. Let be

$$\|f\|_{W^{(l_k)}_{x^{(k)},2}(Q)} = \left\{ \sum_{q \leq l_k} \int_Q \left| D^q_{x^{(k)}} f \right|^2 dx \right\}^{1/2}$$

But if $l_k = l'_k + \lambda_k$, where l'_k is integer and $0 < \lambda_k < 1$, then

(1) means that $f(x) \in W^{(l'_k)}_{x^{(k)},2}(Q)$ and that all integrals

$$L^2_k(D^q_{x^{(k)}} f) = \int_{Q^{(k)}} \left| \Delta(x^{(k)}, y^{(k)}) D^q_{x^{(k)}} f \right|^2 \frac{dx\, dy^{(k)}}{\left| x^{(k)} - y^{(k)} \right|^{n_k + 2\lambda_k}}$$

$(q \leq l'_k)$. Here it is $Q^{(k)} = Q \times \Omega^{(k)}$ $(x \in Q, y^{(k)} \in \Omega^{(k)})$,

$\Delta(x^k, y^k) f = f(x^{(1)}, \ldots, x^{(k-1)}, x^{(k)}, x^{(k+1)}, \ldots, x^{(r)})$ -

$-f(x^{(1)}, \ldots, x^{(k-1)}, y^{(k)}, x^{(k+1)}, \ldots, x^{(r)})$. Furthermore it is

Card 2/5

The Spaces of Fractional Order of S.L.Sobolev and Their   20-118-2-10/60
Application to Boundary Value Problems for Partial Differential Equations

$$D_{x^{(1)}}^{m_1} \cdots D_{x^{(r)}}^{m_r} f \in W_{x^{(1)},\ldots,x^{(r)},2}^{(\bar{1}_1,\ldots,\bar{1}_r)}$$, where $\bar{1}_k = \mu_{m_1,\ldots,m_r} 1_k$. Here

it is

$$\left\| D_{x^{(1)}}^{m_1} \cdots D_{x^{(r)}}^{m_r} f \right\|_{W_{x^{(1)},\ldots,x^{(r)},2}^{(\bar{1}_1,\ldots,\bar{1}_r)}(E_n)} \leqslant c \left\| f \right\|_{W_{x^{(1)},\ldots,x^{(r)},2}^{(1_1,\ldots,1_r)}}$$

and C does not depend on f.
A further theorem contains the statement on the generalized
derivatives in m-dimensional sections E_m of the space E_n.

Both theorems prove to be very useful for the treatment of
boundary value problems. In three theorems the unique solubi-
lity of boundary value problems is proved for the polyharmonic

equation $\Delta^p u = 0$, for $\Delta u = f(x)$ and for $\frac{\partial u}{\partial t} = \Delta u + f(t,x)$.

There are 3 Soviet references.

ASSOCIATION: Leningradskiy gosudarstvennyy pedagogicheskiy institut
              (Leningrad State Pedagogical Institute)

Card 4/5

The Spaces of Fractional Order of S.L. Sobolev and Their   20-118-2-10/60
Application to Boundary Value Problems for Partial Differential Equations

PRESENTED: October 28, 1957, by V.I. Smirnov, Academician

SUBMITTED: April 11, 1957

AVAILABLE: Library of Congress

Card 5/5

SOV/20-120-3-7/67

AUTHOR: Slobodetskiy, L.N.

TITLE: Estimations of the Solutions of Elliptic and Parabolic Systems
(Otsenki resheniy ellipticheskikh i parabolicheskikh sistem)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 120, Nr 3 pp 468-471 (USSR)

ABSTRACT: Let

(1) $$f \in W^{(l_1,\ldots,l_r)}_{x^{(1)},\ldots,x^{(r)},p}(Q)$$

if f for all $k = 1,2,\ldots r$ has generalized derivatives with
respect to $x^{(k)}$ up to the order l_k and the derivatives are
integrable over Q in p-th power.
Theorem: Let the domain Q be bounded by sufficiently smooth
surfaces and let (1) be valid. Then for arbitrary non-negative
integers $m_1,\ldots,m_r$ satisfying the inequality

$$\mu = 1 - \sum_{k=1}^{r} \frac{m_k}{l_k} \geqslant 0$$

there exist the generalized derivatives $D^{m_1}_{x^{(1)}} \cdots D^{m_r}_{x^{(r)}} f$;

Card 1/3

Estimations of the Solutions of Elliptic and Parabolic   SOV/20-120-3-7/67
Systems

they belong to the space $W^{(\overline{1}_1,\ldots,\overline{1}_r)}_{x^{(1)}\ldots x^{(r)},p}(Q)$ where $\overline{1}_k = 1_k \mu$.

For the norm it holds

$$\left\| D^{m_1}_{x^{(1)}}\cdots D^{m_r}_{x^{(r)}} f \right\|_{W^{\overline{1}}_{x,p}} \leqslant C \|f\|_{W^1_{x,p}} \quad ,1\equiv(1_1,\ldots,1_r),$$
$$x \geqq x^{(1)},\ldots,x^{(r)}$$

(The definition of the norm compare [Ref 1]).
Four further theorems give upper and lower estimations of the
norms of the solutions of linear elliptic and parabolic systems
(in the sense of Petrovskiy). These estimations generalize the
corresponding results of Guseva [Ref 4], Browder [Ref 5],
Koshelev [Ref 6], Nirenberg [Ref 7], and Ladyznenskaya [Ref 10].

There are 10 references, 7 of which are Soviet, and 3 American.

ASSOCIATION: Leningradskiy gosudarstvennyy pedagogicheskiy institut imeni
A.S. Gertsena (Leningrad State Pedagogical Institute imeni
A.S. Gertsen)

PRESENTED: January 18, 1958, by V.I. Smirnov, Academician

Card 2/3

AUTHOR: Slobodetskiy, L.N.   SOV/20-123-4-10/53

TITLE: Estimates   in the L_p of the Solutions of Elliptic Systems
            (Otsenki v L_p resheniy ellipticheskikh sistem)

PERIODICAL: Doklady Akademii nauk SSSR, 1958,Vol 123,Nr 4,pp 616-619 (USSR)

ABSTRACT: The author generalized his own earlier results [Ref 1,2,3]
            and a theorem of Gagliardo [Ref 4].
            Theorem: Let l be a natural number, $1 < p < \infty$, Ω be a finite
            domain of the E_n with the $(l+1)$ times continuously differentiable
            boundary S. Let $v = v(x) \in W_p^{(1)}(\Omega)$. Then for $k=0,1,\ldots,l-1$
            the derivatives with respect to the normal $\partial^k v/\partial \nu^k$ belong
            - considered as functions of the point of S - to the spaces
            $W_p^{(1-k-1/p)}(S)$. Here $\left\| \dfrac{\partial^k v}{\partial \nu^k} \right\|_{W_p^{(1-k-1/p)}(S)} \leqslant C_1 \|v\|_{W_p^{(1)}(\Omega)}$,

            where C_1 depends only on Ω. The reversion of the theorem is
            valid too.

Card 1/2

Estimates   in the L_p of the Solutions of Elliptic Systems   SOV/20-123-4-10/53

A second theorem follows out of the above theorem and contains an assertion on the estimation of the norms of elliptic differential operators.
There are 4 references, 3 of which are Soviet, and 1 Italian.

ASSOCIATION: Leningradskiy gosudarstvennyy pedagogicheskiy institut imeni A.I.Gertsena (Leningrad State Pedagogical Institute imeni A.I.Gertsen)

PRESENTED: July 4, 1958, by V.I.Smirnov, Academician

SUBMITTED: July 2, 1958

Card 2/2

27

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S/044/60/000/007/021/058
C111/C222

16·3500

AUTHOR: Slobodetskiy, L.N.

TITLE: Generalized spaces of S.L.Sobolev and their appliaction to
            boundary value problems for partial differential equations

PERIODICAL: Referativnyy zhurnal. Matematika, no.7, 1960, 107.
            Abstract no.7661. Uch.zap.Leningr.gos.ped.in-ta im.A.I.
            Gertsena, 1958, 197, 54-112

TEXT: For arbitrary real and nonnegative numbers $l_1,\ldots,l_r$ the author
introduces the functional spaces $W^{(l_1,\ldots,l_r)}_{x^{(1)},\ldots,x^{(r)},2}(Q)$, where the hyper-
cylindric region of the n-dimensional space E_n, $Q=\Omega^{(1)}\times\ldots\times\Omega^{(2)}$, $\Omega^{(k)}$
- finite or infinite region of the $E^{(k)}$ - is the n_k-dimensional space
of the points $x^{(k)} = x^{(k)}_1 \ldots x^{(k)}_{n_k}$. $\sum_{k=1}^{r} n_k = n$. For $l_1=\ldots=l_r=1$, and
integral 1 the introduced spaces are identical with the spaces $W^{(1)}_2(Q)$
of Sobolev, and for $l = 0$ they are identical with $L_2(Q)$. The author

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S/044/60/000/007/021/058
C111/C222

Generalized spaces of S.L.Sobolev...

gives continuation and imbedding theorems for these spaces which are formulated in the same manner as the corresponding theorems of S.M. Nikol'skiy for the spaces $H_2^{(r_1,\ldots,r_n)}$. The author investigates the properties of the spaces $W_{x^{(1)},\ldots,x^{(r)},2}^{(l_1,\ldots,l_r)}$ (Q): Completeness,

continuability of the functions beyond the boundaries, comparison of $W_{x^{(1)},\ldots,x^{(r)},2}^{(l_1,\ldots,l_r)}$ with $H_2^{(r_1,\ldots,r_n)}$, density of the set of finite

functions etc. The spaces $W_{x^{(1)},\ldots,x^{(r)},2}^{(l_1,\ldots,l_r)}$ are also considered on

differentiable manifolds. The basic results are obtained with the aid of the Fourier transformation and the Parseval equation. As applications the author derives necessary and sufficient conditions for the solvability of several problems of mathematical physics which lead to

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Generalized spaces of S.L.Sobolev...   C111/C222

elliptic and parabolic equations or to the polyharmonic equation. The
imbedding theorems are further improvements of the corresponding
theorems of S.L.Sobolev. Some partial results of the paper are already
known.

[Abstracter's note: The above text is a full translation of the original
Soviet abstract.]

Card 3/3

SLOBODETSKIY, L. N., Doc Phys-Math Sci (diss) -- "S. L. Sobolev's generalized spaces and their application to marginal problems for differential equations in partial derivatives". Leningrad, 1959. 14 pp (Leningrad Order of Lenin State U im A. A. Zhdanov), 150 copies (KL, No 23, 1959, 159)

69752

S/043/60/000/02403/011

I4 3500

AUTHOR: Slobodetskiy, L.N.

TITLE: Estimations of the Solutions of Linear Elliptic and Parabolic
Systems in the L_2. I. Estimations of the Solutions of the Elliptic
System IV

PERIODICAL: Vestnik Leningradskogo universiteta, Seriya matematiki,
mekhaniki i astronomii, 1960, No.2, pp.28-47

TEXT: The present paper is a continuation of the author's investigations
(Ref.6). It uses the same notations and contains the proofs of the results
already announced by the author in (Ref.1,2). At the same time the author
corrects some formulations of (Ref.1). He mentions S.N.Bernshteyn, O.A.
Ladyzhenskaya, O.V.Guseva, I.G.Petrovskiy, Ya.B.Lopatinskiy, I.N.Vekua,
S.G.Kreyn and M.I.Vishik. There are 13 references: 11 Soviet, 1 American
and 1 Swedish.

SUBMITTED: July 7, 1958

Card 1/1

SOV/42-15-1-

AUTHOR: Shapodetskiy, L. N.

TITLE: Remarks on the Article, "Uniqueness of Solution of Cauchy's
             Problem for Quasi-Linear Symmetric Systems"

PERIODICAL: Uspekhi matematicheskikn nauk, 1960, Vol 15, Nr 1, p 262
             (USSR)

ABSTRACT: In the paper by the author and M. I. Khramova ("On the
             Uniqueness of Solutions of Cauchy's Problem for Quasi-
             Linear Symmetric Differential Equation System," Uspekhi
             Matematicheskikh nauk, Vol 11, Nr 4 (70) (1956) 155-162),
             it was assumed that $F(z)$ is a positive nondecreasing
             and nonconvex function and that the integral:

$$\int_0^{\delta} \frac{dz}{F(z)} \qquad (\delta > 0)$$

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Remarks on the Article, "Uniqueness
of Solution of Cauchy's Problem for   778L
Quasi-Linear Symmetric Systems"   SOV/42-15-1-26/27

       diverges. In this note the author shows that the condition
       that $F(z)$ be nondecreasing is not required. There is
       1 Soviet reference.

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AUTHOR: Slobodetskiy, L. N.

TITLE: Embedding of spaces $W_p^{(l_1,\ldots,l_n)}$ in spaces $N_p^{(l_1,\ldots,l_n)}$ by S. M. Nikol'skiy

PERIODICAL: Uspekhi matematicheskikh nauk, v. 15, no. 3, 1960, 177-180

TEXT: The author derives a theory of embedding which establishes a rela-tion between the functional spaces $W_p^{(l)}$ explained in earlier papers and the functional spaces $N_p^{(l)}$ by S. M. Nikol'skiy. At the beginning, he defines the spaces $W_p^{(l)}$ and $N_p^{(l)}$: The function $u = u(x)$ is described as belonging to the space $W_{x,p}^{(l)}$ if u and its generalized derivative $d^l u/dx^l$ belong to L_p. The function $u(x)$ is described as belonging to the space $N_{x,p}^{(1)}$ if it belongs to the space $W_{x,p}^{(\bar{l})}$, and if the conditions:

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Embedding of spaces ...

$$\left\| \Delta_x (d^{\overline{1}} u/dx^{\overline{1}}, h) \right\|_{L_p} = o(|h|^{\alpha}) \text{ for } 0 < \alpha < 1,$$

$$\left\| \Delta_x^2 (d^{\overline{1}} u/dx^{\overline{1}}, h) \right\|_{L_p} = o(|h|) \quad \text{for } \alpha = 1$$

with $1 = \overline{1} + \alpha$, $\Delta_x(u, h) = u(x + h) - u(x)$ are fulfilled. The author presents the result obtained, in the following form: If the function $u(x)$ belongs to the space $W_p^{(1)}$ then it also belongs to the space $N_p^{(1)}$. Moreover, it holds that:

$$\left\| \Delta (d^{1'} u/dx^{1'}, h) \right\|_{L_p} = o(|h|^{\lambda}) \quad (h \to 0).$$

if $1 = 1' + \lambda$, $0 < \lambda < 1$, and

$$\left\| \Delta^2 (d^{1-1} u/dx^{1-1}, h) \right\|_{L_p} = o(|h|) \quad (h \to 0).$$

There are 7 Soviet-bloc references.

SUBMITTED: October 15, 1958

Card 2/2

SLOBODETSKIY, L. N.

Estimates in L_2 for solutions of linear elliptic and parabolic
systems. Part 1: Estimations of solutions of an elliptic system.
Vest. LGU 15 no.7:28-47 '60.   (MIRA 13:4)
(Differential equations, Partial)

16.3500

26461
S/140/61/000/003/007/009
C111/C333

AUTHORS: Slobodetskiy, L. N., Solomeshch, J. A.

TITLE: On the first boundary value problem for some degenerate elliptic equations

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Matematika, no. 3, 1961, 116-126

TEXT: Let Ω be a finite domain of the n-dimensional space $x = (x_1, \ldots, x_n)$; S -- sufficiently smooth boundary of Ω. Let $\sigma = \sigma(x)$ be a $(2k + 1)$ - times continuously differentiable function in $\bar{\Omega} = \Omega + S$ for which

$$A_1 \varsigma(x) \leqslant \sigma(x) \leqslant A_2 \varsigma(x) \qquad (1)$$

where $\varrho(x)$ is the distance from x to S and A_1, A_2 are positive constants. Let $u = u(x) \in W_{2,\alpha}^{(k)}(\Omega)$ $(0 \leqslant \alpha < 1)$, if u is square summable over Ω and possesses all generalized derivatives of order k in Ω, where it holds

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On the first boundary value . . .

$$D_\alpha^{(k)}(u) = \int_\Omega \left[\sum_{i_1,\ldots,i_k=1}^{n} \left(\frac{\partial^k u}{\partial x_{i_1} \cdots \partial x_{i_k}} \right)^2 \right] \rho^\alpha dx < +\infty \quad . \quad (2)$$

Let

$$\|u\|_{W_{2,\alpha}^{(k)}}(\Omega) = \left\{ \int_\Omega u^2 dx + D_\alpha^{(k)}(u) \right\}^{\frac{1}{2}} , \qquad (3)$$

Assume that the subdomain $\Omega_\delta (\delta > 0)$ of Ω consists of the points for which $\rho(x) > \delta$. Let S_δ be the boundary of Ω_δ. Let f_0, $f_1, \ldots, f_{k-1}$ be functions defined on S; $\vec{v} = \vec{v}(x')$ is assumed to be unit vector of the interior normal of S in $x' \in S$. Let $u \in W_{2,\alpha}^{(k)}(f)$, if $u \in W_{2,\alpha}^{(k)}(\Omega)$ and if it holds

Card 2/8

On the first boundary value . . .

$$\left.\frac{\partial^{j} u}{\partial \nu^{j}}\right|_{S} = f_{j} \quad (j = 0,1,\ldots, k - 1), \tag{4}$$

where the equality $u|_{S} = f$ is understood in the sense of $u|_{S\delta} \to f$ in the mean for $\delta \to 0$.

Let the Sobolev spaces $W_{2}^{(1)}$ be defined as usual.

The boundary S of Ω is assumed to satisfy the conditions:
a.) S can be covered by a finite number of overlapping surfaces $\mathfrak{S}_{1},\ldots, \mathfrak{S}_{q}$, where each of the surfaces $\mathfrak{S}$ has the equations

$$x_{1} = x_{1}(t_{1},\ldots, t_{n-1}) \quad (1 = 1,2,\ldots,n) \tag{6}$$

where $x_{1}(t_{1},\ldots, t_{n-1}) = x_{1}(t')$ are defined in a cube γ of the space of the $t' = (t_{1},\ldots, t_{n-1})$; b.) there exists a $\delta > 0$ such that for every

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On the first boundary value . . .

s = 1,2,..., q the equation

$$x = x(t') + \nu \, t_n \qquad (7)$$

defines a one-to-one transformation of Ω_s onto the rectangular parallelepiped M_s : $t' \in \gamma_s$, $0 < t_n < 2\delta$ (Ω_s consists of those points of Ω which are in a distance from σ_s smaller than 2δ);

c.) $x(t)$ is k-times continuously differentiable with respect to $t_1,\ldots, t_n$ and $t = t(x)$ with respect to $x_1,\ldots, x_n$.

Theorem 1: If $u \in W_{2\alpha}^{(k)}(\Omega)$, then u possesses all generalized derivatives of orders $1 < k$ in Ω, where on each sufficiently smooth manifold Γ of the dimension $m > n' - 2(k - 1 - \alpha)$ the derivatives $D^l u$ of the order l are summable in the power

$$q^* < \frac{2n}{n'-2(k-1-\alpha)} \qquad (10)$$

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On the first boundary value . . .

and   (11)

$$\| D'u \|_{L_{q}*(\Gamma)} \leqslant C \| u \|_{W_{2,\alpha}^{(k)}(\Omega)}$$

holds, where C does not depend on u.

Theorem 2: If the class $W_{2,\alpha}^{(k)}(f)$ is not empty, then there exists a unique function $u \in W_{2,\alpha}^{(k)}(f)$, which gives a minimum to the integral (2) in the class $W_{2,\alpha}^{(k)}(f)$. This function is 2k-times continuously differentiable in Ω and is the single solution of

$$\sum_{i_1,\ldots,i_k=1}^{n} \frac{\partial^k}{\partial x_{i_1} \ldots \partial x_{i_k}} \left(\sigma^{\alpha} \frac{\partial^k u}{\partial x_{i_1} \ldots \partial x_{i_k}} \right) = 0 \qquad (5)$$

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On the first boundary value . . .

in $W_{2,\alpha}^{(k)}(f)$.

Theorem 3: If $u = u(x) \in W_{2,\alpha}^{(k)}(\Omega)$, then the boundary values of its normal derivatives of the order $j \leq n - 1$ on S belong to the spaces $W_2^{(\tau_j)}(S)$ with $\tau_j = k - 1 - \frac{1+\alpha}{2}$. Here it holds

$$\left\| \frac{\partial^j u}{\partial v^j} \right\|_{W_2^{(\tau_j)}(S)} \leq C \|u\|_{W_{2,\alpha}^{(k)}(\Omega)} \tag{18}$$

where C does not depend on u.

Theorem 4: Let $f_j \in W_2^{(\tau_j)}(S)$ $(j = 0, 1, \ldots, k-1)$. Then there exists a function $u \in W_{2,\alpha}^{(k)}(\Omega)$ which satisfies the boundary conditions (4).

Here it holds

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On the first boundary value . . .

$$\|u\|_{W^{(k)}_{2,\alpha}(\Omega)} \leq C \sum_{j=0}^{k-1} \|f_j\|_{W^{(\tau_j)}_{2}(S)} \qquad (29)$$

where C does not depend on f_j ($j = 0,1,\ldots, k-1$).

Theorem 5: In order that the class $W^{(k)}_{2,\alpha}(f)$ be not empty it is necessary and sufficient that $f_j \in W^{(\tau_j)}_{2}(S)$ ($j = 0,1,\ldots, k-1$).

Theorem 6: In order that the boundary value problem (5), (4) be solvable in $W^{(k)}_{2,\alpha}(\Omega)$ it is necessary and sufficient that $f_j \in W^{(\tau_j)}_{2}(S)$ ($j = 0,1,\ldots, k-1$). If these conditions are satisfied, then for the solution $u = u(x)$ it holds:

$$C_1 \sum_{j=0}^{k-1} \|f_j\|_{W^{(\tau_j)}_{2}(S)} \leq \|u\|_{W^{(k)}_{2,\alpha}(\Omega)} \leq C_2 \sum_{j=0}^{k-1} \|f_j\|_{W^{(\tau_j)}_{2}(S)}, \qquad (37)$$

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On the first boundary value . . .

where C_1, C_2 are positive constants only depending on Ω .

The authors mention: V. M. Babich, A. A. Vasharin, M. J. Vishik, S. G. Mikhlin, Ye. V. Makhover, S. L. Sobolev.

There are 12 Soviet-bloc references and 1 non-Soviet-bloc reference. The reference to English-language-publication reads as follows: N. Aronszain, Boundary values of functions with finite Dirichlet integral. Conf. on part. diff. equat., No. 14, (Univ. of Kansas), 1955.

ASSOCIATION: Leningradskiy pedagogicheskiy institut imeni
A. J. Gertsena (Leningrad Pedagogical Institute imeni
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Petrozavodskiy gosudarstvenny universitet (Petrozavodsk State University)

SUBMITTED: February 9, 1959

Card 8/8

SLOBODETSKIY, L.N., doktor fiz.-mat. nauk, prof.

[Textbook for a higher mathematics course] Uchebnoe posobie
po kursu vysshei matematiki. Leningrad. Sec.: Theory of
determinants] Teoriia opredelitelei. 1963. 36 p.
(MIRA 17:4)

BABICH, V.M.; KAPILEVICH, M.B.; MIKHLIN, S.G.; NATANSON, G.I.;
RIZ, P.M.; SLOBODETSKIY, L.N.; SMIRNOV, M.M.;
LYUSTERNIK, L.A., red.; YANPOL'SKIY, A.R., red.
MIKHAYLOVA, T.N., red.

[Linear equations in mathematical physics] Lineinye urav-
neniia matematicheskoi fiziki. [By] V.M.Babich i dr. Moskva,
Izd-vo "Nauka," 1964. 368 p.   (MIRA 17:7)

SLOBODETSKIY, L.N.

Fundamental solution to a parabolic system and its continuous dependence on the parameter. Dokl. AN SSSR 156 no. 4:742-744 Je '64.   (MIRA 17:6)

1. Leningradskiy institut vodnogo transporta. Predstavleno akademikom V.I.Smirnovym.

06563
SOV/170-59-9-4/18

24(8)

AUTHORS: Rabinovich, G.D., Slobodich, G.N.

TITLE: An Experimental Investigation of the Heat Transfer Process Between a Pulsating Gas Flow and Solid Particles Suspended in It

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1959, Nr 9, pp 30-37 (USSR)

ABSTRACT: A number of writers dealt with the problem of intensification of heat transfer: I.T. El'perin, V.P. Romadin /Ref 5/, Linke and Hufschmid /Ref 3/. The authors of the present paper describe the results of some preliminary experiments in their investigation of the heat transfer process in a pulsating gas flow. Hot air heated to 130 - 150°C served as a gas whose flow was periodically interrupted by a pulsator, which led to pulsations of its velocity. The grains of rye were made to move in this pulsating air flow. It has been found that the duration of particle staying in a tube was considerably longer for the case of a pulsating flow than in the stationary flow; this is shown by Figure 1 and Formula 5. On the other hand, the coefficient of heat transfer decreases with an increase in the number of pulsations of the air flow, as shown by Figure 2. However, the resulting effect of pulsations on the effectiveness of heat transfer is positive, as shows Figure 3, and

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An Experimental Investigation of the Heat Transfer Process Between a Pulsating Gas Flow and Solid Particles Suspended in It

the effectiveness of this process can be raised by a factor of 3 or 4 in comparison with heat transfer in a stationary flow. This may be of importance for designing small-size or portable drying and heat transfer devices. Investigations of the following Soviet researchers are mentioned in the paper: D.N. Lyakhovskiy, I.M. Fedorov $\overline{/}$ Ref 9 $\overline{/}$, Z.F. Chukhanov $\overline{/}$ Ref 11 $\overline{/}$, I. Gastershtadt $\overline{/}$ Ref 7 $\overline{/}$, N.M. Mikhaylov $\overline{/}$ Ref 9 $\overline{/}$ and S.S. Zabrodskiy $\overline{/}$ Ref 12 $\overline{/}$.
There are 3 graphs and 13 references, 10 of which are Soviet, 2 English and 1 American.

ASSOCIATION: Institut energetiki AN BSSR (Institute of Power Engineering of the AS BSSR), Minsk

Card 2/2

SLOBODICH, G.N.

Using the thermistor for temperature measurements in a
circuit with an e.m.f. bridge. Trudy Inst.energ. AN
BSSR no.10:122-126 '59.   (MIRA 13:6)
                    (Electric measurements)

SLOBODICH, L.A.

Equipping bins of motar pumps with vibrating screens. Suggested
by L.A.Slobodich. Rats.i izobr.v stroi. no.9:61-62 '59.
(MIRA 13:1)

1. Glavnyy mekhanik UNR-2 tresta No.1 Ministerstva stroitel'-
stva BSSR, Minsk, ul.Vysokaya, d.15.
(Motar)

FOTIYEV, A.A.; SLOBODIN, B.V.

Interaction of sodium sulfate with vanadium pentoxide.
Zhur. neorg. khim. 10 no.1:150-159 Ja '65.

(MIRA 18:11)

1. Institut khimii Ural'skogo filiala AN SSSR. Submitted
Nov. 14, 1963.

FOTIYEV, A.A.; SLOBODIN, B.V.

Kinetics of the formation of vanadium bronze NaV_6O_{15} during the reaction of sodium sulfate with vanadium pentoxide. Zhur. prikl. khim. 38 no.3:499-504 Mr '65. (MIRA 18:11)

1. Institut khimii Ural'skogo filiala AN SSSR. Submitted May 13, 1963.

FOTIEV, A.A.; SLOBODIN, B.V.

Behavior of sodium sulfate at high temperatures. Zhur. neorg.
khim. 10 no.3:569-572 Mr '65.   (MIRA 18:7)

1. Institut khimii Ural'skogo filiala AN SSSR.